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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ODLAND, DAVID E	

ART UNIT	PAPER NUMBER
2662	4

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/676,743	ADLER, JOHN C.	
	Examiner	Art Unit	
	David Odland	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 1, the serial numbers of the related applications have been omitted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 18 it is unclear why there is a second recitation of "...the interconnected nodes."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3,5,6 and 8, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (USPN 5,412,652), in view of Takatori (USPN 5,550,805), hereafter referred to as Takatori.

Referring to claim 1, Lu discloses a method for a communications network including a protect channel transmitting protect channel data (protection channels that transmit extra traffic (see figure 5 and column 8 lines 24-40)) and working channel transmitting working channel data (a working channel that transmits normal traffic (see figure 5 and column 8 lines 24-40)), the method comprising transmitting the working channel data via the protect channel upon a disruption in the working channel (when the working traffic fails the protection traffic is preempted (see column 8 lines 24-40)) and restoring the transmitting of protect channel data (when the failure has been rectified, full recovery is realized through the use of the ring table (see column 13 lines 61 through column 14 line 3)), wherein restoring includes applying a restoration protocol to the communications network to restore the transmittal of the protect channel data (a protocol is used to recovery from the failure and the network is restored to its previous state, thus the protect channel is restored (see column 13 lines 61 through column 14 line 3)). Lu does not disclose that the restoration protocol is a 'mesh' restoration protocol. However, Takatori discloses a failure restoration system wherein a failure is restored using a mesh restoration protocol (see abstract and figures 1-4)). It would have been obvious to one skilled in the art at the time of the invention to implement this type of network restoration protocol in Lu because mesh networks are very reliable since each node is connected to all other nodes and thus many protection paths can exist.

Referring to claim 2, Lu discloses the system discussed above. Lu does not disclose that the mesh restoration protocol is a distributed mesh restoration protocol. However, Takatori disclose a distributed mesh restoration protocol (see figures 1-4). It would have been obvious to one skilled in the art at the time of the invention to implement this feature into Lu because distributed restoration is more reliable tan centralized restoration because if a node of a distributed restoration fails there are still other nodes that can perform the restoration.

Referring to claims 3,5,6 and 8, Lu discloses the system discussed above. Furthermore, Lu discloses that the protect channel data is at least one of video, voice and data (the protect channels transmit extra traffic (see column 8 lines 24-40));

wherein the communications network is one of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy (SDH) (the Lu system is implemented in a SONET system (see abstract));

wherein the communication network includes a plurality of interconnected nodes, the interconnected nodes having at least one of a working channel and a protect channel (the network nodes include working and protecting channels (see figures 1 and 2));

wherein the mesh restoration protocol includes communicating status and control messages across a physical network layer of the communication network (the ring tables are transmitted among the network nodes for restoring the network, this is inherently done using the physical layer (columns 13 and 14)).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Takatori and further in view of Nemoto (USPN 5,506,833), hereafter referred to as Nemoto.

Referring to claim 4, Lu discloses the system discussed above. Lu does not disclose that the restoring further includes finding one or more alternate channels to transmit the protect channel data, the one or more alternate channels including connected working and protect channels. However, Nemoto discloses a system wherein protection channel data is restored by transmitting the disrupted protect channel data on a secondary spare channel (see item 40 of figure 11)). It would have been obvious to one skilled in the art at the time of the invention to implement this feature into Lu because doing so would make Lu more reliable. Namely, if the protect channels of Lu because disrupted there would be a secondary spare channel, as taught in Nemoto, to further process the protect channel traffic.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Takatori and further in view of Shah et al. (USPN 5,646,936), hereafter referred to as Shah.

Referring to claim 7, Lu discloses the system discussed above. Lu does not disclose that the plurality of interconnected nodes transmits a disruption signal upon receiving a signal indicating the disruption, the disruption signal flooding the communication network to determine alternate routes for the protect channel data. However, Shah discloses of a path restoration technique wherein when a link disruption takes place alternate paths are set up through the use of flooding the network with messages about the disruption (see figure 1 and column 1 lines 51-63). It would have been obvious to one skilled in the art at the time of the invention to implement this feature in the system of Lu because doing so would make Lu more robust since it would exhaust efforts in finding alternate routes and not rely on a single alternate route.

7. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Takatori and further in view of Shioda et al. (USPN 5,537,393), hereafter referred to as Shioda.

Referring to claims 9-11, Lu discloses the system discussed above. Lu does not disclose that the status and control messages are communicated using SONET frame overhead bytes, out-of-band communications channels or a distributed routing protocol. However, Shioda discloses a system wherein a restoration protocol is implemented to restore protection channel data (see column 7)) and wherein status and control information is communicated in frame overhead bytes (see column 7), which can be considered out-of-band channels and which are inherently designated (distributed) according to a protocol (see columns 7 and 8)). It would have been obvious to one skilled in the art at the time of the invention to implement these features into Lu because communicating this information out-of-band, in overhead byte and according to a distribution protocol would make Lu more bandwidth efficient and resourceful.

8. Claims 12-18,20-25 and 27-29, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioda in view of Takatori.

Referring to claims 12, 21 and 29, Shioda discloses an apparatus disposed in a communication network having a protect channel and a working channel (a node in a network that has working and protection lines (see figure 1)), the apparatus comprising a node controller (the nodes have CPUs (see column 4 lines 25-33)), a route processor coupled to the node controller, the route processor implementing a restoration protocol (the nodes performs the restoration of working and protection lines (see columns 7 and 8)), a circuit coupled to the node controller and the route processor, the circuit including a logic gate for receiving signals

identifying disruptions in transmissions in the protect channel and the working channel (a AIS generator and comparator identify disruptions in the working and protection paths (see columns 7 and 8)), a switch responsive to the signals identifying disruptions in transmissions in the protect channel and the working channel (the data from the working path is switched to the protection path (see columns 7 and 8)), the switch communicating the route processor to implement restoration of protect channel data (the data is switched from the working and or protection lines to other working and/or protection lines (see columns 7 and 8)). Shioda does not disclose that the restoration protocol is a 'mesh' restoration protocol. However, Takatori discloses a failure restoration system wherein a failure is restored using a mesh restoration protocol (see abstract and figures 1-4)). It would have been obvious to one skilled in the art at the time of the invention to implement this type of network restoration protocol in Lu because mesh networks are very reliable since each node is connected to all other nodes and thus many protection paths can exist.

Note regarding claim 29, Shioda does not disclose that the system is implemented in a program. However, it would have been obvious to one skilled in the art at the time of the invention to implement the Shioda system in this manner because the developmental costs of a software implementation are less than that of a hardware based implementation. Furthermore, software is easier to upgrade than hardware.

Referring to claim 13, Shioda discloses the system discussed above. Furthermore, Shioda discloses that the circuit is coupled to at least one line card, the line card transmitting the signals identifying disruptions in transmissions in the protect channel and the working channel (the AIS

signals are transmitted over the working and protection lines to indicate disruptions, note the circuits are inherently implemented on cards (see columns 7 and 8 and figure 7)).

Referring to claim 14, Shioda discloses the system discussed above. Furthermore, Shioda discloses that the circuit includes an input/output circuit for receiving instructions identifying criteria for applying mesh restoration to protect channel data (when the ID's don not match the path is considered disrupted, thus this is the criteria used (see columns 7 and 8 and figure 7)).

Referring to claim 15, Shioda discloses the system discussed above. Shioda does not disclose that the criteria are a function of the type of data being transmitted as the protect channel data. However, It would have been obvious to one skilled in the art at the time of the invention to base the criteria on data type because different data types have different transmission requirements (e.g. voice data requires low delay), thus basing the criteria on the data type in Shioda will make Shioda more flexible and reliable.

Referring to claims 16-18,20,22-25 and 28, Shioda discloses the system discussed above. Furthermore, Shioda discloses that the protect channel data includes at least one of voice, video and data (data is transmitted in the SPE of the frames of the system (see figure 1));

wherein the communications network is one of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy (SDH) (the system uses the SONET protocol (see abstract and figure 1));

wherein the communication network includes a plurality of interconnected nodes, the interconnected nodes having at least one of a working channel and a protect channel (the network has interconnected nodes and working and protection channels (see figure 1)).

wherein the route processor implements a mesh restoration protocol that includes communicating status and control messages across SONET overhead bytes of the communication network (the Shioda system uses overhead bytes to implement the protection system (see columns 7 and 8));

wherein the means for restoring further includes means for finding one or more alternate channels to transmit the protect channel data, the one or more alternate channels including connected working and protect channels (the PCA data can be rerouted over another protection path or over a working path of another subscriber (see columns 7 and 8 and figure 7));

wherein the apparatus includes a plurality of circuits disposed in a plurality of linked nodes, each circuit coupled to a node controller associated with one of the plurality of linked nodes (the nodes comprise many circuits and are in a network of linked nodes and the nodes have CPUs (see figures 2 and 7)).

Referring to claim 27, Shioda discloses the system discussed above. Shioda does not disclose that the apparatus is in a management bay with a plurality of other cards. However, It would have been obvious to one skilled in the art at the time of the invention to implement the nodes of Shioda in this fashion because doing so would give network technicians a well-confined and organized way of performing operation, testing, repairing and maintenance operations, thus making the Shioda system more user friendly. This is particularly important in Shioda because since disruptions are occurring it is important to repair the network elements that are malfunctioning and causing these disruptions as quickly as possible, thus implementing nodes in this well-confined and organized manner will help improve the timing and quality of such repairs.

9. Claims 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shioda in view of Takatori and further in view of Shah.

Referring to claims 19 and 26, Shioda discloses the system discussed above. Shioda does not disclose that the plurality of interconnected nodes transmits a disruption signal upon receiving a signal indicating the disruption, the disruption signal flooding the communication network to determine alternate routes for the protect channel data. However, Shah discloses of a path restoration technique wherein when a link disruption takes place alternate paths are set up through the use of flooding the network with messages about the disruption (see figure 1 and column 1 lines 51-63). It would have been obvious to one skilled in the art at the time of the invention to implement this feature in the system of Shioda because doing so would make Shioda more robust since it would exhaust efforts in finding alternate routes and not rely on a single alternate route.

Conclusion

10. The following prior art, which is made of record and not relied upon, is considered pertinent to applicant's disclosure:

a. U.S. Patent Number 6,473,397 to Au.

b. U.S. Patent Number 4,956,835 to Grover.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Odland, who can be reached at (703) 305-3231 on Monday – Friday during the hours of 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou, can be reached at (703) 305-4744. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, who can be reached at (703) 305-4750.

deo

December 11, 2003

JOHN PEZZLO
PRIMARY EXAMINER